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ABSTRACT

This paper reviews the literature on mastery learning theory and reports its successful application since 1987 with mainstreamed special education students at one elementary school in Missouri. The methodology, originally developed by Benjamin Bloom, involves formative evaluation after initial instruction followed by either corrective activities and reevaluation or by enrichment activities. Use of mastery learning is reported to result in substantially increased student achievement for both regular and special education students. At the Thorpe-Gordon elementary school in Jefferson City, Missouri, the techniques of mastery learning are being used in regular classes in which 40 mildly disabled and at risk students from the fourth, fifth, and sixth grades are mainstreamed. The regular class teacher provides the initial instruction and administers the first formative assessment. Corrective instruction is then provided within the classroom to students who have not attained mastery while the regular teacher provides enrichment activities to the remaining students. Standardized test results show that only 10%, compared to 40% previously, of students achieve in the bottom two quintiles with 50-75% achieving in the highest quintile. Grades of the mainstreamed students and comments of teachers also support the program's success. Includes 19 references. (DB)

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USING MASTERY LEARNING IN THE REGULAR CLASSROOM TO HELP LEARNING DISABLED AND AT-RISK STUDENTS

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One of the major goals of educational intervention programs for mildly disabled and at risk students is that they offer a "Least Restrictive Learning Environment" (Deschler, Schumaker, & Lenz, 1984; Roddy, 1984). Although this has been interpreted, in a variety of ways, often it means "mainstreaming" or the placement of such students in a regular classroom (Bickel & Bickel, 1986; National Longitudinal Transition Study (NLTS), 1990; U.S. Department of Education, 1990). In some cases students are mainstreamed for the entire school day. More often, however, they send only part of the school day in regular classrooms and the rest of the time in a special education classroom (NLTS, 1990).

During the time students are in the special education setting, they typically receive individualized instruction provided by a special educator. This individualized attention allows students to learn their own pace, provides immediate feedback on learning progress, and offers specific help in correcting learning errors. Many educators are now coming to see that it is possible to provide students with similar individualized assistance within the regular classroom. The vehicle used to accomplish this is a process known as mastery learning.

MASTERY LEARNING THEORY

In the middle 1960's Benjamin S. Bloom began a series of investigations on how the most powerful aspects of individualized instruction might be adapted to improve student learning in group-based classrooms. He noted that while different students learn at different rates, all can learn well if provided with the necessary time and proper learning conditions. In fact, Bloom believed that under

these more appropriate learning conditions, 80% or more of all students could reach the same high level of achievement typically attained by only the top 20% of students under more traditional forms of instruction (Bloom, 1968).

To provide these more appropriate learning conditions, Bloom (1971) recommended that the material to be learned first be divided into instructional units, similar to the way the chapters are organized in a course textbook. Following a teacher's initial instruction over the material in each unit, a formative evaluation or quiz is administered to students, not as part of the grading process but, instead, to provide feedback to both students and the teacher about what material was learned well and what was not. Special corrective activities are then offered to students who require additional time and practice to learn the material. For those who have learned the material well, special enrichment activities are planned to give them opportunities to strengthen and extend their learning. Following the corrective work a second formative evaluation is administered to check on the success of the correctives and to offer students a second chance to achieve success.

INSERT FIGURE 1. HERE

Typically, corrective activities are made specific to each item or part of the test. In this way each student needs to work on only those concepts or skills that he or she has not yet mastered. In other words, the correctives are individualized. They are also designed to present the material differently and

involve the student in alternative learning activities, identifying for the student another, hopefully more appropriate approach to learning that concept. The corrections may be worked on with teacher(s), with peers in cooperative learning teams, or by the student independently.

Thus, with the results from this formative assessment, each student has a very specific prescription of what more needs to be done to master the material or particular learning objectives from that unit. Through this process of formative assessment, combined with systematic correction of individual learning difficulties, each student is provided with a more appropriate quality of instruction than is possible under more traditional approaches to classroom teaching. Under these conditions Bloom believed that virtually all students could learn very well and truly master the subject material (Bloom, 1976).

PRACTICAL IMPLICATIONS

Since the development of these ideas, programs incorporating mastery learning strategies have been initiated in school systems across the United States and typically, these programs have resulted in impressive gains in student learning. Research syntheses of mastery learning studies using meta-analysis techniques[1] report effect size,s at some levels, of nearly one standard deviation (Guskey & Pigott, 1988; Kulik, Kulik, & Bangert-Downs, 1990). This means that the average student in a mastery learning class achieves at a level attained by only the top 15% of students in classes taught by more traditional methods.

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[1] Meta-analysis is a statistical technique that describes the results of tests of similar hypotheses across many studies.

Improvements in student learning that result from the implementation of mastery learning have not been restricted to regular education settings. Significant improvement in the achievement of learning disabled, behavior disordered, and at-risk students have also been noted (Kulik, & Kulik, 1986; Ward, 1987; Walberg, 1990; Kulik, Kulik, & Bangert-Downs, 1990). This research evidence demonstrates, that special education students often experience greater achievement gains in mastery learning classes than do their more able counterparts in traditionally taught classrooms, thus reducing the differences in performance between the two groups.

One highly successful mastery learning program that is meeting the individualized needs of special education students in regular classrooms is at the Thorpe-Gordon school in Jefferson City, Missouri. Beginning in 1987, the staff from the Thorpe-Gordon school voluntarily committed to implementing the ideas and techniques of mastery learning[2]. In this effort they were assisted by staff members from the State Department of Education. The goal of this instructional improvement program was not only to assure each students' mastery of the learner outcomes presented in the regular classroom, but also to improve students'

1. self-concept
2. attitude toward learning experiences
3. peer relationships
4. on task behaviors

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[2] A detailed description of the Missouri Statewide improvement program can be found in Baker, King, & Wulf, (1989). For a detailed description of the Thorpe-Gordon school and how it brought about its educational innovations see Guskey, Passaro, & Wheeler, (1990).

5. learning strategies
6. independence in their own learning experiences (Ciolli, Allen, & Wheeler, undated)

As part of Thorpe-Gordon's improvement effort 40 mildly disabled and at risk students from the fourth, fifth, and sixth grades were mainstreamed into regular classrooms for the entire school day.

As is typical in most states, students in Missouri suspected of possessing a learning disability undergo a comprehensive evaluation to determine their eligibility for special education services. This evaluation includes administration of a variety of standardized developmental, intellectual, academic, and psycho-motor instruments. All students identified as at-risk, or students with mild to moderate learning disabilities are considered for this program. In the case of students eligible for special educational services, however, the final determination for placement is based upon the recommendation of the student's Individual Education Plan (IEP) committee.

Students' at Thorpe-Gordon with mild to moderate learning disabilities who were recommended for this program were placed into regular classrooms, where mastery learning was the primary instructional method, for the entire school day. Within these classes the regular classroom teacher provided initial instruction and then administered the first formative assessment. For those students who did not attain mastery on the first formative assessment (usually 80-90% correct), a special educator (learning disabilities teacher) provided corrective instruction within the regular classroom. Those students who reached mastery on

the first formative assessment worked with the regular classroom teacher on special enrichment activities. This team teaching model provides students who need additional time and support with individualized assistance. It also provides regular classroom teachers with specific expertise on the correction of learning difficulties.

Program Results

Evidence from a variety of sources has been used to evaluate the effectiveness of the mastery learning program at the Thorpe-Gordon school. One source is students' performance on annual statewide achievement tests known as the Missouri Mastery Achievement Test (MMAT)[3]. The first year the MMAT was administered students' scores were grouped into quintiles. That is, the range of test scores were divided into five intervals, each containing approximately 20 percent of the scores. Results in subsequent years were then compared to these original score interval quintiles as a means of documenting progress.

Students classified as mildly disabled and at-risk typically score in the lower quintiles of the MMAT. If the mastery learning program at Thorpe-Gordon School was working well the number of students scoring in these lower quintiles should decrease as these students achieve greater learning success.

As can be seen in Figures 2-5 this is precisely what has happened. The effect of the mastery learning program on low performing students over the past

[3] The MMAT is a criterion referenced test developed by the Missouri State Department of Education to assess core competencies and key skills identified by over 300 educators - elementary, secondary, and tertiary teachers, subjects area specialists, and school administrators - from across the state. See Baker, King, & Wulf (1989) for a detailed description of this instrument and its development.

three years is substantial. When the program began in 1987, 40% of Thorpe-Gordons students were in the bottom two quintiles, which is comparable to the statewide totals. By 1989 however, only 10% of their students scored in the range of the bottom quintiles. Furthermore, 70-90% of the Thorpe-Gordon students scored in the top two quintiles, with 50-75% scoring in the highest quintile, depending upon subject area. A comparison of learning disabled students in the Thorpe-Gordon program to their cohort in traditional pullout programs on the MMAT reveals that from 1988 to 1989 Thorpe-Gordon student's MMAT scores increased by 13.64% (over a one standard deviation increase), while learning disabled students in traditional resource programs gained only 3.89%.

INSERT FIGURES 2-5 HERE

Another source of data used to evaluate the program has been student grades. Here again the results are quite impressive. Each year since 1987, 75% of the mastery learning-mainstreamed students attained a grade of C or better in all academic areas within the regular education curriculum.

The comments offered by teachers involved in the program were also overwhelmingly positive. One of the regular classroom teachers at Thorpe-Gordon who taught a class into which several mildly disabled and at-risk students had been mainstreamed summarized her feelings about the program by saying: "This is so much better for the students and me. It has been really helpful in meeting particular student's needs within the class. It is wonderful!"

School administrators at Thorpe-Gordon report very positive impressions as

well. Several mentioned that the mastery learning process enabled their regular educators to gain information on learning styles and strategies, while their special educators learned more about the school curriculum and regular classroom procedures. As a result both were more effective as teachers.

Parents of students placed into this program were also highly supportive. One parent expressed her perceptions saying,

> "I think this program has helped my son's attitude about the stigma of being in special education. His self confidence has improved and he now comments about the fact that mastery learning feels like having another teacher, yet not a 'special' teacher, and this is acceptable...This program works: Take a look at his grades-there's the proof."

Perhaps most importantly, the students themselves expressed very positive feelings about the change and subsequent improvements in their academic performance. Eighty percent of the mainstreamed students stated that they prefer the mastery learning-mainstreaming model to the resource room programs in which they had previously participated.

CONCLUSION

With the Regular Education Initiative calling for better cooperation between regular and special education (Will, 1986), many teachers are struggling to provide all of the students they teach with more effective instruction. Most would like to spend a greater portion of their time offering individualized instruction to low performing students, but the demands of large group-based classrooms make it impossible or impractical to do so. These teachers would also like to help more of their students be successful in learning and gain the many positive benefits of that success.

Mastery learning offers a means by which these lofty goals be accomplished. Teachers can generally implement mastery learning with relatively minor changes in their teaching procedures. Although it does not make teaching any easier for them, it offers a valuable tool they can use to help many more of their students learn excellently (Guskey, 1985). In addition, teachers who adopt mastery learning generally find that their students become more involved in the learning process, attendance rates increase, behavior problems are reduced, and students feel better about learning and about themselves as learners. As success breeds success this increased confidence is likely to be carried over to future learning situations.

Teachers also report that the use of mastery learning helps decrease unhealthy competition among students. School becomes a place where all students (disabled and non-disabled) work together with the teacher and all can truly master the material. Furthermore, teachers who use mastery learning often describe how it renews their enthusiasm for teaching, provides an effective way to deal with difficult educational problems, and serves to increase their professional pride (Guskey, 1985).

In conclusion, mastery learning instructional strategies provide a useful and purposeful technique for accomplishing the mandates of the Regular Education Initiative (Will, 1986), as well as providing special educational services in the Least Restrictive Environment. By utilizing the corrective and enrichment process in mastery learning, teachers can provide more students with an individualized approach to instruction while dealing with "real-world" classroom constraints.

REFERENCES

Baker, O., King, R., & Wulf, K.M. (1989). The Missouri comprehensive statewide project for improving student achievement. Paper presented at the annual meeting of the American Educational Research Association. Boston, MA.

Bloom, B.S. (1968). Learning for mastery. Evaluation Comment. (UCLA-CSIEP), 1, 2, 1-12.

Bloom, B.S. (1971). Mastery learning. In J.H. Block (Ed.), Mastery learning: Theory and practice. NY: Holt, Rinehart & Winston.

Bloom, B.S. (1976). Human characteristics and school learning. New York: McGraw-Hill.

Brickel, W.E. & Brickel, D.D. (1986). Effective schools, classrooms, and instruction: Implications for special education. Exceptional Children. 52, 6. 489-500.

Ciolli, J., Allen, A., Wheeler, W. (undated). Rationale for class within a class Jefferson City Schools. Jefferson City, MO.

Deschler, Schumaker, & Lenz, (1984). Academic and cognitive interventions for LD adolescents. Journal of Learning Disabilities. 17, 2, 108-117.

Guskey, T.R. (1985). Implementing Mastery Learning. Belmont, California: Wadsworth.

Guskey, T.R. & Pigott, T.D. (1988). Research on group based mastery learning programs: A meta-analysis. Journal of Educational Research, 81, 4 197-216.

Guskey, T.R., Passaro, P.D. & Wheeler, W. (1990). Missouri's Thorpe-Gordon School: A model for school improvement. Article under development.

Kulik, J.A. & Kulik, C.L. (1986). Mastery testing and student learning. Journal of Educational Technology Systems. 15, 325-345.

Kulik, C.L., Kulik, J.A., & Bangert-Downs, R.L. (1990). The effectiveness of mastery learning programs: A meta-analysis. Review of Educational Research. 60, 2, 265-299.

National Longitudinal Transition Study (1990). The school programs and school performance of secondary students classified as learning disabled: Findings from the National Longitudinal Transition study of special education students. SRI International. Menlo Park, CA.

Roddy, E.A. (1984). When are the resource rooms going to share in the declining enrollment trend? Journal of Learning Disabilities. 17, 5, 279-281.

U.S. Department of Education (1989). Eleventh annual report to Congress on the implementation of the Education of the Handicapped Act. U.S. Department of Education. Washington, D.C.

U.S. Department of Education (1990). Twelfth annual report to Congress on the implementation of the Education of the Handicapped Act. U.S. Department of Education. Washington, D.C.

Walberg, H.J. (1990). Productive teaching and instruction: Assessing the knowledge base. Phi Delta Kappan. February, 470-478.

Ward, J. (1987). Educating children with special needs in regular classrooms: An Australian perspective. Macqarie University, Special Education Centre, Sydney, Australia.

Will, M.C. (1986). Educating children with learning problems: A shared responsibility. Exceptional Children. 52, 411-415.

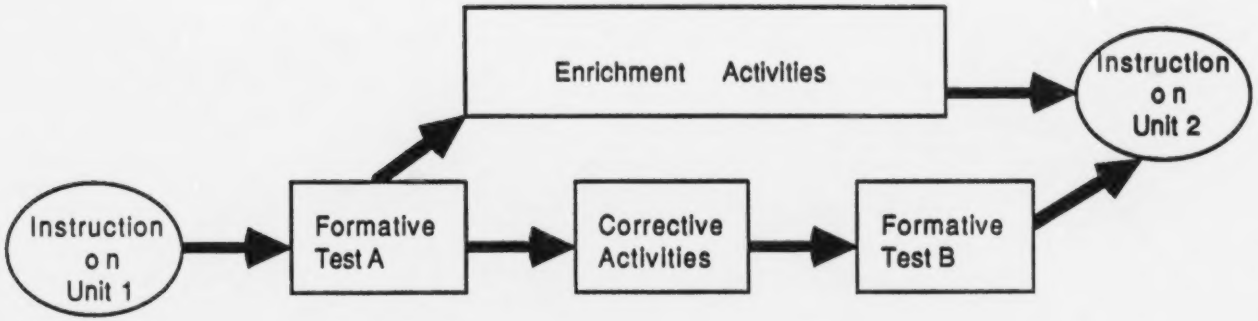

Figure 1. The process of instruction under mastery learning

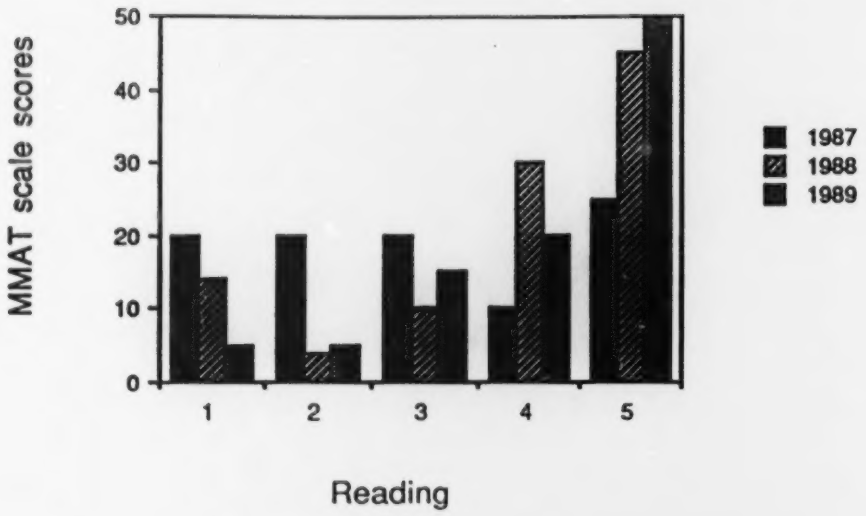

Figure 2.1 Grade 3 Thorpe Gordon quintile distributions of MMAT scale scores for reading

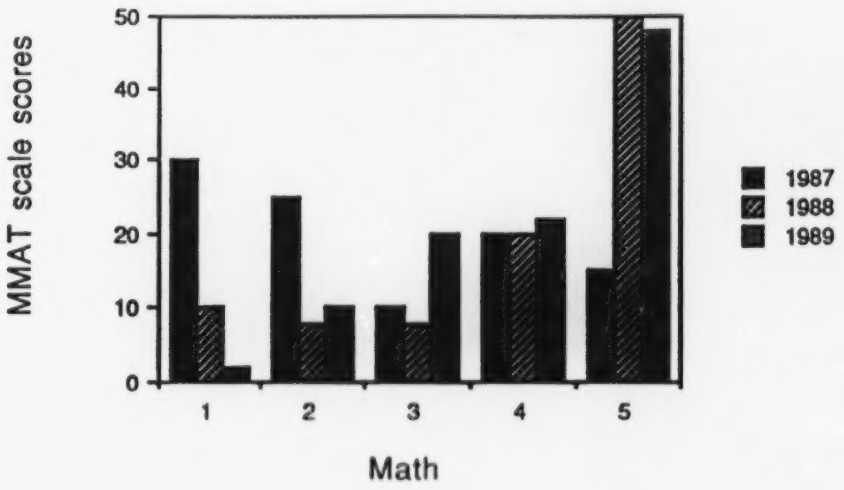

Figure 2.2 Grade 3 Thorpe Gordon quintile distributions of MMAT scale scores for math

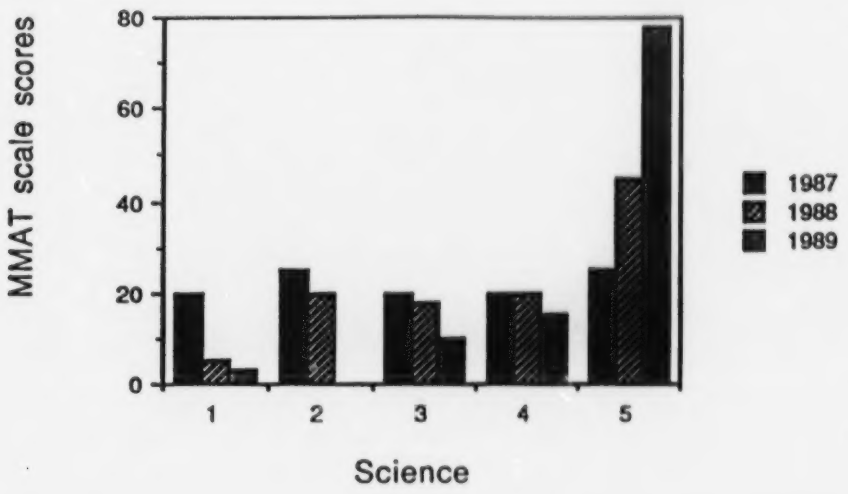

Figure 2.3 Grade 3 Thorpe Gordon quintile distributions of MMAT scaled scores for science

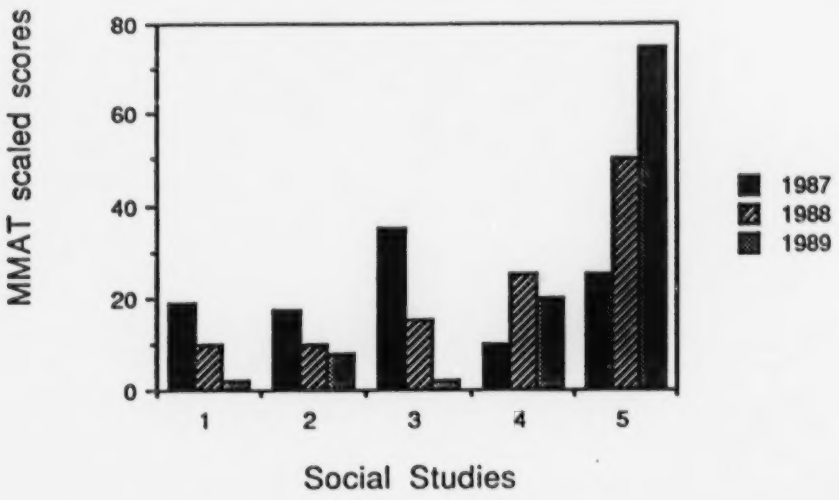

Figure 2.4 Grade 3 Thorpe Gordon quintile distributions of MMAT scaled scores for social studies